

Title (en)
HETEROJUNCTION BIPOLAR TRANSISTOR WITH BALLISTIC OPERATION

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Application
EP 87119044 A 19871222

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Abstract (en)
[origin: EP0273363A2] For improvement in operation speed, there is provided a heterojunction bipolar transistor comprising, a) an emitter region (27) formed of a first semiconductor material of a first conductivity type, b) a base region (24) formed of a second semiconductor material of a second conductivity type opposite to the first conductivity type and forming a first junction together with the emitter region, and c) a collector region (23) formed of a third semiconductor material of the first conductivity type and forming a second junction together with the base region, the heterojunction bipolar transistor has a plurality of abrupt potential discontinuities including first and second abrupt potential discontinuities produced in succession to provide kinetic energies to a carrier injected from the emitter region, respectively, and the first abrupt potential discontinuity is produced at one of the first and second junctions, thereby allowing the carrier to move over a distance longer than a linear free path of the carrier in the ballistic manner.

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